DOCUMENT RESUME

SP 004 904

ED 051 096

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TITLE	Three Pressing Concerns of Educational Research.
INSTITUTION	Stanford Univ., Calif. Stanford Center for Research and Development in Teaching.
SPONS AGENCY	Office of Education (DHEW), Washington, D.C.
BUREAU NO	BR-2-0252
PUB DATE	Mar 67
CONTRACT	OEC-6-10-078
NOTE	16p.; Research Memorandum No. 1.
EDRS PRICE	EDRS Price MF-$0.65 HC-$3.29
DESCRIPTORS	Culturally Disadvantaged, Disadvantaged Youth, Educational Development, *Educational Research, Educational Researchers, Professional Training, *Research Needs, Teaching Methods
IDENTIFIERS	Bronfenbrenner (U)

ABSTRACT

This paper predicts three directions toward which educational research should focus in the future. First, education for the culturally disadvantaged needs new ideas that will produce effects of whose educational significance there can be no doubt. The group forces that Bronfenbrenner has described as being at the basis of Soviet methods of character education may produce this kind of effect. Second, the field of educational research needs improved ways of combating the obsolescence of its workers. The formal, organized training program for senior research workers may fill an important part of this need. Third, new relationships between research and development are needed so that research may make a more positive and substantial contribution to development. (Author/RT)

ED051096

STANFORD CENTER FOR RESEARCH AND DEVELOPMENT
IN TEACHING

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Research Memorandum No. 1

THREE PRESSING CONCERNS OF EDUCATIONAL RESEARCH

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March 1967

SP004904

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Address Delivered

at

the Eighteenth Annual Conference on Educational Research
Fairmont Hotel, San Francisco, California
November 18, 1966

RESEARCH RESUME NUMBER 33
California Teachers Association
1705 Murchison Drive
Burlingame, California

California Advisory Council
on Educational Research

January, 1967

Three Pressing Concerns of Educational Research[1]

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The field of educational research has new concerns of many kinds, but this paper deals with only three of the most pressing. In examining new directions, one could merely predict, or one could advocate. In this paper, an attempt is made to do both, that is, to make certain predictions and also to urge that they be borne out; it is hoped that the prophecies will be self-fulfilling.

Some Earlier Predictions

Before looking at the future, let us go back to the recent past. Here are six examples of predictions made in 1962 (Gage, 1963) that seem to have been not too far off the mark and thus show that predictions in this realm can be made with some validity.

First, research on teaching has indeed quickened; several new organizations, including two research and development centers, and many more projects and publications are now devoted to such research.

Second, sophistication in designing experiments has indeed reached a new level, in part as a result of a chapter in the Handbook of Research on Teaching, the Campbell-Stanley chapter, which bids fair to become the leavener of a whole generation of graduate students.

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[1]Based on an address to the California Advisory Council on Educational Research, San Francisco, November 18, 1966.

Third, the question of how to get the fruits of educational research put to use in the schools has grown more insistent; two signs of the problem are the National Institute for the Study of Educational Change, recently established at Indiana University, and a conference on the role of educational research in educational change, to be held by the UNESCO Institute for Education in Hamburg next summer.

Fourth, federal support of educational research has increased just as was being urged in 1962; the Office of Education now provides several more millions for research each year than were available just four years ago.

Fifth, the large new organizational structures that many persons, like Symonds and Eurich and Ryans, were urging in the years just before 1962 have materialized; ten research and development centers and 20 regional laboratories have been established, each with a budget and staff that would have seemed awesome just a few years ago.

Finally, the "most urgent issue in the logistics of educational research" in 1962 was the problem of attracting, selecting, and training the next generation; in 1966, a federal program supports unprecedented numbers of undergraduate, predoctoral, and postdoctoral research traineeships.

So, accurate predictions about new directions in educational research can be made. That earlier paper distinguished between substantive, methodological, and logistical developments. ("Logistical" refers to the matters of money, manpower, facilities, opportunities, publication channels, and organizational structures.) Of these three kinds of development since 1962, the logistical seem to have been

most dramatic. It is more difficult to find comparable substantive developments. Yet substantive progress is the main goal; methodology and logistics are only means toward such progress. Society gets a return on its investment in educational research through substantive advances. And, except for those who love research methodology and logistical wherewithal for their own sakes, educational research workers themselves must measure how far they have come and determine what new directions to take on the basis of substantive payoff.

The Culturally Disadvantaged

One important substantive problem of educational research is education for socially disadvantaged children. Such children--the main target of the billion dollars provided by Title I of the Elementary and Secondary Education Act of 1965--have been the subject of what is now a vast literature. But much of this literature merely describes the characteristics, language development, and learning disabilities of disadvantaged children. However valid and informative, it has not dealt with what should be done to improve their education--their intellectual, social, and emotional competence.

A smaller literature does, however, deal with what ought to be done. Reviews of that literature indicate that it deals with demonstration guidance projects, higher horizons programs, school-community coordinating teams (Wilkerson, 1965), and the Project Head Start program at the pre-school level. In general, the evidence concerning the effectiveness of all these efforts has not been clear-cut. The research accompanying these programs has not been well enough designed with attention to experimental controls or statistical tests of significance. In 1965,

Wilkerson concluded that "...currently available research in this field typically reports ambiguous outcomes of unknown or amorphous educational variables" (1965, p. 438). More recently, Hunt concluded that "although the number of studies investigating the culturally deprived adolescent student has increased enormously during the present decade, this increase has not produced a greatly increased understanding of how to plan effective educational programs for them" (1966, p. 470).

It follows that the variables manipulated thus far have not been powerful enough. Better diagnosis, more individualized attention, improved guidance, work experience, increased cooperation between school and other agencies, smaller classes, vocational curricula, achievement motivation training, more concrete and physicalistic curricular materials, and improving teacher training in general, to take account of the different learning styles among culturally deprived students--none of these has yielded striking results.

Even at the pre-school level, what has been done so far does not seem powerful enough:

> A major study has concluded that the educational advantages of the government's Head Start program tend to disappear as the child moves on through later grades. The study also provides considerable evidence that Head Start children fare worse than their classmates when the teacher is ineffective.
>
> (New York Times, October 22, 1966, p. 1).

Apparently, the gains possessed by Head Start children in September in adjustment to routine had disappeared after four months of kindergarten work. Their initial advantage in behavior toward classmates was slight, and their marked advantage in speech, work, and listening habits had disappeared after six months. The same was true of educational achievement. The study concluded that Head Start advantages, even the largest ones, last only if the teaching and curriculum in the kindergarten are strong.

In the face of this lack of success, it seems justifiable to speculate about a kind of variable that may prove to be more effective than any tried so far. It is set forth in a paper by Bronfenbrenner (1962) that, so far as I know, has been ignored by the educators who have been struggling with the problem of socially disadvantaged children, a paper that has not yet even been mentioned in various issues of the Review of Educational Research (April 1965, December 1965, October 1966) on education for socially disadvantaged children.

Bronfenbrenner's paper, entitled "Soviet Methods of Character Education: Some Implications for Research," can be epitomized in this description of a Russian manual for the training of school directors and teachers: ...the manual starts us off on the first day of school with the teacher standing before the newly assembled class. What should her first words be? Our text tells us: "It is not difficult to see that a direct approach to the class with a command 'All sit straight' often doesn't bring the desired effect since a demand in this form does not reach the sensibilities of the pupils and does not activate them. How does one 'reach the sensibilities of the pupils' and 'activate them'?" According to the manual, here is

what the teacher should say: "Let's see which row can sit the straightest." This approach, we are told, has certain important psychological advantages. In response, "the children not only tried to do everything as well as possible themselves, but also take an evaluative attitude toward those who are undermining the achievement of the row. If similar measures arousing the spirit of competition in the children are systematically applied by experienced teachers in the primary classes, then gradually the children themsleves begin to monitor the behavior of their comrades and remind those of them who forget about the rules set by the teacher, who forget what needs to be done and what should not be done. The teacher soon has helpers" (pp.551-552).

Bronfenbrenner's paper contains many elaborations and variations on this theme. Records are kept for each row from day to day to develop in the young children a concept of group excellence. In a short time, part of the teacher's monitoring function is delegated to various pupils for different activities, and "the monitors become very involved in the progress of their row." Rewards of various kinds are given to the winning rows, and eventually competition between classes is introduced. The teacher also uses the group process in correcting undesirable behavior, such as tardiness. So, when a child is late, the teacher asks the class: "Children, is it helpful or not helpful to us to have Serezha come in late?" And the teacher gets suggestions from the class on how to help Serezha with her tardiness problem.

According to Bronfenbrenner, this is not merely textbook doctrine. His conversations with Russian teachers convinced him that they actually used this approach. They asked him how American teachers "use the collective?" They employ social criticism not only in the school but get reports from parents on the behavior of the child at home. The whole system of rewards and sanctions seems to be based on a conscious effort to exploit the power of group cohesiveness, group norms, and group rewards and punishments. Honor rolls carry the names "not of individual pupils but of rows and links, which are the smallest units of the Communist Youth Organization." And even when praise is given to individuals, the reference to the group is made: "Today Peter helped Kate and as a result his unit did not get behind the rest." The grades received by individuals depend on the overall performance of their unit, so that the able student benefits from helping the less able one.

Bronfenbrenner treats the Soviet approach as if it were relevant solely to character training. He does not deal with its possible value in promoting intellectual development in the school. He also seems to regard the Soviet socialization practices primarily as an interesting kind of variable for research on socialization processes. Yet much of the problem of educating the culturally deprived student is, of course, a motivational problem. And, as we know, the effects of group forces on behavior have not been neglected by American social psychologists--the experiments by Lewin, Lippitt, and White on autocracy and democracy; Asch's demonstrations of the power of group forces toward conformity; the experiments

by Sherif and Sherif on group cooperation toward superordinate goals; the experiment by Coch and French on group productivity. In short, American social psychologists know a great deal about the forces that the Soviet educators have been using.

An American educator quickly raises questions: Should we exploit group forces in these ways? Is it moral to promote group criticism and self-criticism? Can we gain the advantages of group processes for enhancing motivation without sacrificing American ideals of personal responsibility? Such questions of morals and values must be considered before we try the Soviet approach. The vast differences between our two societies make us hesitate to adopt what may be an alien way of education.

But should we not at least take a serious look at the kinds of educational variables that Bronfenbrenner called to our attention four years ago? If more careful examination of what Bronfenbrenner described makes these methods look promising, if they are carefully developed into realistic and workable programs suited to American conditions, and if their functioning and outcomes are studied with all the sophistication of design and measurement technique that American methodologists can bring to bear, we may acquire an effective weapon for the war on poverty.

Obsolescence among Educational Researchers

Now let us turn to a logistical problem, one that has been portrayed with some poignancy in novels and plays. Sinclair Lewis's Arrowsmith, as you may recall, had been working at the McGurk Institute for about a year, when his mentor, Max Gottlieb, said to him,

> ...you can do nothing until you know a little mathematics... All living things are physical-chemical machines. Then how can you make progress if you do not know physical chemistry, and how can you know physical chemistry without much mathematics?

So Arrowsmith spent a year reviewing and learning mathematics -- algebra, trigonometry, analytic geometry, and differential calculus.

All of that happened a year or two before the First World War. In the middle 1920's, Arthur Miles, in C. P. Snow's The Search, said to himself:

> I could taste the new explanations. But I could not devise them. I could see the way physics and chemistry were falling into shape, but I could not help....For, as I have said, these new conceptions were brought about by a set of mathematical techniques, and to take part in them one needed a kind of training I had never had....

In 1964, John Kenneth Galbraith, in a belated review of "Who's Afraid of Virginia Woolf?" also concerned himself with obsolescence. As professors get older, he says,

> Pay continues. The students remain deferential and may even applaud. Colleagues are affable. It is only that the community has reached a consensus that the man is done. The once-promising young scholar or scientist is now known to be a hopeless pedant or a minor fraud. The academic eagle of the Truman years is really a hopeless bore.

Obsolescence results from all the new substantive and methodological developments that pour out of our journals, monographs, books, conferences, and symposia. Only a few miscellaneous illustrative developments need be mentioned: Bayesian theory, computer simulation, Oblimin and Procrustes, multivariate analysis of variance, consistency theory, all-or-none processes in learning, decision theory, organization theory, theory of estimation, the burgeoning of Skinnerian psychology, computer-assisted instruction, flexible scheduling, data banks, educational TV, and information theory. Just computer applications, in themselves, have multiplied enough to make a large fraction of educational research workers obsolescent.

The need to fight obsolescence has always afflicted scientists and engineers. In engineering, the situation may be even worse than it is in educational research. A considerable literature has appeared in engineering journals on obsolescence among engineers and what to do about it. One writer (Seifert, 1964) indicates that in the 1950's, the "hot" technologies were servo-mechanisms, operations research, micro waves, nuclear engineering, rocket propulsion, polymers, and solid-state devices. But in the 1960's, the up-to-date engineer needs to know automation, computer technology and computer-aided design, micro-electronics, superconductivity, advanced communications theory, plasma physics, and extra-terrestrial engineering. About 700,000 bachelor's degrees in engineering have been awarded since 1940. It is estimated that about 350,000 of these engineers are now out-of-date.

The engineers have attacked their obsolescence problem through retraining programs in various universities and corporations. One six-week modern engineering

course is offered at UCLA, Northeastern, M.I.T., and elsewhere. Indeed, M.I.T. has organized a Center for Advanced Engineering Study aimed at increasing the effectiveness of mature engineers. Another program, conducted by General Electric twice a year, puts 30 men from its high-level engineering management into a six-week course at a cost estimated at about $6,000 per student, or about $350,000 per year for the whole program.

In educational research, we may already have the beginnings of comparable developments. The Committee on Learning and the Educative Process of the Social Science Research Council has already conducted two summer training conferences. But the students at these sessions have been relatively young Ph.D.'s, and the conferences have been relatively informal and unstructured, as compared with what the engineers describe. The American Educational Research Association has organized several five-day training sessions, each on a different topic, for the period just prior to its annual meeting. We have long had the sabbatical leave, in which a scientist or scholar writes his book or pursues his interests on his own, for the most part quite independently. The Center for Advanced Study in the Behavioral Sciences has served a similar purpose.

It may be that we need an additional and different kind of training to combat the kind of obsolescence besetting us. We may need more formal courses, intensively taught, designed for men in their 40's and 50's. Such organized re-training programs might give the middle-aged research worker an intellectual self-renewal. Universities, the Office of Education, foundations, professional and scientific societies, and industrial firms could collaborate to make this kind of re-training feasible.

Relationships between Research and Development

Now let us consider only one more concern: the relationship between research and development. As of today, the developers and designers seem to have all the better of the enterprise of improving education. They are designing new curricula, new ways of organizing schools, new patterns of teaching, new modes of teacher education, new teaching materials, and many other things, at an unprecedented rate. Research workers seem to be lagging behind, often behaving like a consumers' research organization that issues evaluations of products already superseded by the manufacturers' new models. Their work too often consists in evaluation, or comparison of the old with the new. They do not seem to help enough in the development of the new and improved. The designers too often do their work just as effectively without much reference to what research workers have to offer.

This raises questions. How can research do something more than chase or get in the way of development? How can research provide help to the developer in the form of theories and facts that will produce better ideas than the developer's raw ingenuity now yields? How can research relate to development in ways that do not have the flavor of mere carping and fault-finding? It seems to me that the new R & D centers, regional laboratories, and supplementary education centers must arrange more fruitful marriages between research and development.

Basic research, conducted without any practical end in view, surely needs no defense in view of the history of science. But what about the other kinds of research? How can they not merely keep up with, but guide and lead, the forces of the innovation in education? It may well be that, in the answer to that question, will lie the most important new development in educational research in our generation.

Summary

Rather than considering the whole array of new directions in educational research, I have attempted to predict and advocate only three pressing concerns. First, education for the culturally disadvantaged desperately needs fresh and powerful ideas that will produce effects of whose educational significance there can be no doubt. The group forces that Bronfenbrenner has described as being at the basis of Russian methods of character education may produce this kind of effect. Second, the field of educational research needs improved ways of combating the obsolescence of its workers. The formal, organized, training program for senior research workers may fill an important part of this need. Third, new relationships between research and development are needed to permit the former to advance the latter.

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